A new species of *Myriophyllum* L. (Haloragaceae) from artesian springs in Queensland

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Summary

Halford, D.& Fensham, R.J. (2001). A new species of *Myriophyllum* L. (Haloragaceae) from artesian springs in central Queensland. *Austrobaileya* 6 (1): 133–137. *M. artesium* Halford & Fensham is described, illustrated and diagnosed against related species. Notes on habitat and distribution are provided.

Key words: *Myriophyllum*, taxonomy, Australian flora, *Myriophyllum artesium*, Haloragaceae

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Introduction

Since 1997, the second author has been undertaking vegetation surveys of artesian mound springs in Queensland. In the course of this work a number of specimens of *Myriophyllum* were collected that did not match any species previously accounted for in Orchard's ('1985' 1986) revision of Australian *Myriophyllum*. Further research has since indicated that this *Myriophyllum* is a distinct, previously undescribed taxon. The new species is described here.

Taxonomy

Myriophyllum artesium Halford & Fensham, **sp. nov.,** quoad habitum et folia monomorpha et aliquantum sculpturam fructuum aspectu *M. implicati* Orchard, quoad folia opposita et caules comparate crassos *M. pedunculato* J. Hooker simile, autem ab illo foliis oppositis plerumque latioribus oblanceolatis vel anguste ellipticis in ambitu et caulibus florentibus crassioribus et mericarpiis pallido-brunneis et floribus masculis sub anthesi pedicellis longioribus differt, et ab hoc sepalis florum masculorum nullis et forma sculturaque mericarpiorum et forma foliorum facile distinguendum. **Typus:** Queensland. South Kennedy District: Doongmabulla, NW of Clermont, 3 Feb 1998, *R.J. Fensham* 3355 (holo: BRI).

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Myriophyllum sp. (Aramac B.A. Wilson 110) in Henderson (1997).

Creeping mat-forming herb 15 cm high, with erect flowering stems unbranched, arising from a tangled mat of prostrate rhizomatous stems. All stems slender, c. 0.8 mm in diameter; prostrate stems rooting freely at the nodes. Leaves monomorphic, all opposite (rarely, a few alternate on fast growing stems), oblanceolate to narrowly obovate or narrowly elliptic to elliptic, 3.3–5.5 mm long, 1.2–2.9 mm wide, obtuse or attenuate at base; margins entire; tip blunt with a small red terminal gland; midrib obscure. A very small (0.1 mm) hydathode present on each side of the base of the leaf. Plants dioecious (individual stems either male or female). Inflorescence a simple spike with the flowers borne singly in the axils of the leaves. Bracteoles sexually dimorphic. Bracteoles of male flowers ovate to broad ovate, 0.6–1 mm long, 0.4–0.6 mm long; ± margins entire; tip acute to obtuse. Bracteoles of female flowers ovate to lanceolate, 0.6–0.8 mm long, 0.2–0.3 mm wide; margins entire; tip acute. Male flowers 4-merous, on pedicels 2–3.5 mm long at anthesis. Sepals absent. Petals 4, maroon flush distally, 1.8–3 mm long, 0.9–1 mm wide, hooded, not keeled or unguiculate, tip rounded. Stamens 8; filaments 1–1.2 mm long; anthers linear-oblong, 1.4–1.7 mm long, c. 0.4 mm wide, non-apiculate. Styles and ovary absent. Female flowers 4-merous, sessile. Sepals, petals and stamens absent. Styles 4, sessile; stigmas white, fimbriate.

Ovary ± cubic, 0.5–0.6 mm long, 0.4–0.5 mm wide, rounded on angles, weakly verrucose. Fruit sessile, pale brown, ± cubic (slightly longer than wide), 0.7–0.9 mm long, 0.7 mm diameter. Mericarps separating freely at maturity, ± cylindrical (slightly wider near the base). 0.6–0.8 mm long, 0.3–0.4 mm diameter, rounded at base, slightly obliquely truncate at apex, sparsely papillose on dorsal surface. Fig. 1.

***Additional specimens*: Queensland.** GREGORY SOUTH DISTRICT: Elizabeth Springs, ca 100 km SW of Boulia, Feb 1999, *Fensham* 3669 (BRI); MITCHELL DISTRICT: Edgbaston E of Aramac, Feb 1998, *Fensham* 3347 (BRI); Edgbaston Station, 40 km NE of Aramac, Nov 1994, *Wilson* 110 (BRI). LEICHHARDT DISTRICT: Karalee, Taroom district, Jul 1996, *Fensham* 2878 (BRI). GREGORY SOUTH DISTRICT: ca 35 km WSW of Quilpie, Mar 1997, *Connolly* [AQ522039] (BRI). WARREGO DISTRICT: Twomanee Plain, Granite Springs, ca 55 km SW of Eulo, Feb 1999, *Fensham* 3659 (BRI); Yowah Ck, Bundoona ca 40 km NW of Eulo, Feb 1999, *Fensham* 3681 (BRI); *loc. cit., Fensham* 3685 (BRI); Werewilka, ca 70 km SW of Eulo, Feb 1999, *Fensham* 3658 (BRI).

***Distribution and habitat*:** *Myriophyllum artesium* occurs in central and southern Queensland, where it has been collected from the Boulia, Clermont - Aramac, Taroom, Quilpie, and Eulo districts Map 1. It is generally restricted to the wetlands associated with springs emanating from the Great Artesian and associated basins. There are also two collections where the species was recorded having colonised a creek-line fed by permanent artesian water emanating from a running bore.

***Phenology*:** Flowers have been recorded in February and November; fruits have been recorded in February.

***Affinities*:** *M. artesium* resembles *M. implicatum* Orchard in its habit, monomorphic leaves and to some extent its fruit sculpturing. However, it differs in having opposite leaves which are oblanceolate to narrowly obovate or narrowly elliptic to elliptic in outline and generally broader, stouter flowering stems, light brown mericarps, and longer pedicels on male flowers at anthesis. *M. artesium* is similar to *M. pedunculatum* J. Hooker and *M. amphibium* Labill. in having

Table 1. Comparison of *Myriophyllum artesium* with similar species, *M. implicatum, M. pedunculatum* and *M. amphibium*.

Character	*M. artesium*	*M. amphibium*	*M. pedunculatum*	*M. implicatum*
sexuality	dioecious	monoecious	monoecious	monoecious
leaf arrangement	opposite	opposite	opposite	alternate
leaf shape	oblanceolate to narrowly obovate or narrowly elliptic to elliptic	oblanceolate to obovate	linear to terete	linear
leaf width (mm)	1.2–2.9	(1.5–)2–3(–5)	0.2–0.3(–0.4)	0.6–0.7
stem diameter (mm)	c. 0.8	c. 1	0.9–1.1	c. 0.4
pedicel length of male flowers at anthesis (mm)	2–3.5	< 0.5	1–4.5	0.6–0.7
sepals on male flowers	absent	present	present	absent
mericarp shape	± cylindrical	ovoid to lacrimiform	ovoid to obpyriform	cylindrical
mericarp sculpturing	papillate	verrucose-papillose	smooth or verrucose	papillate
mericarp colour	light brown	deep purplish black	reddish purple to black	purplish-red

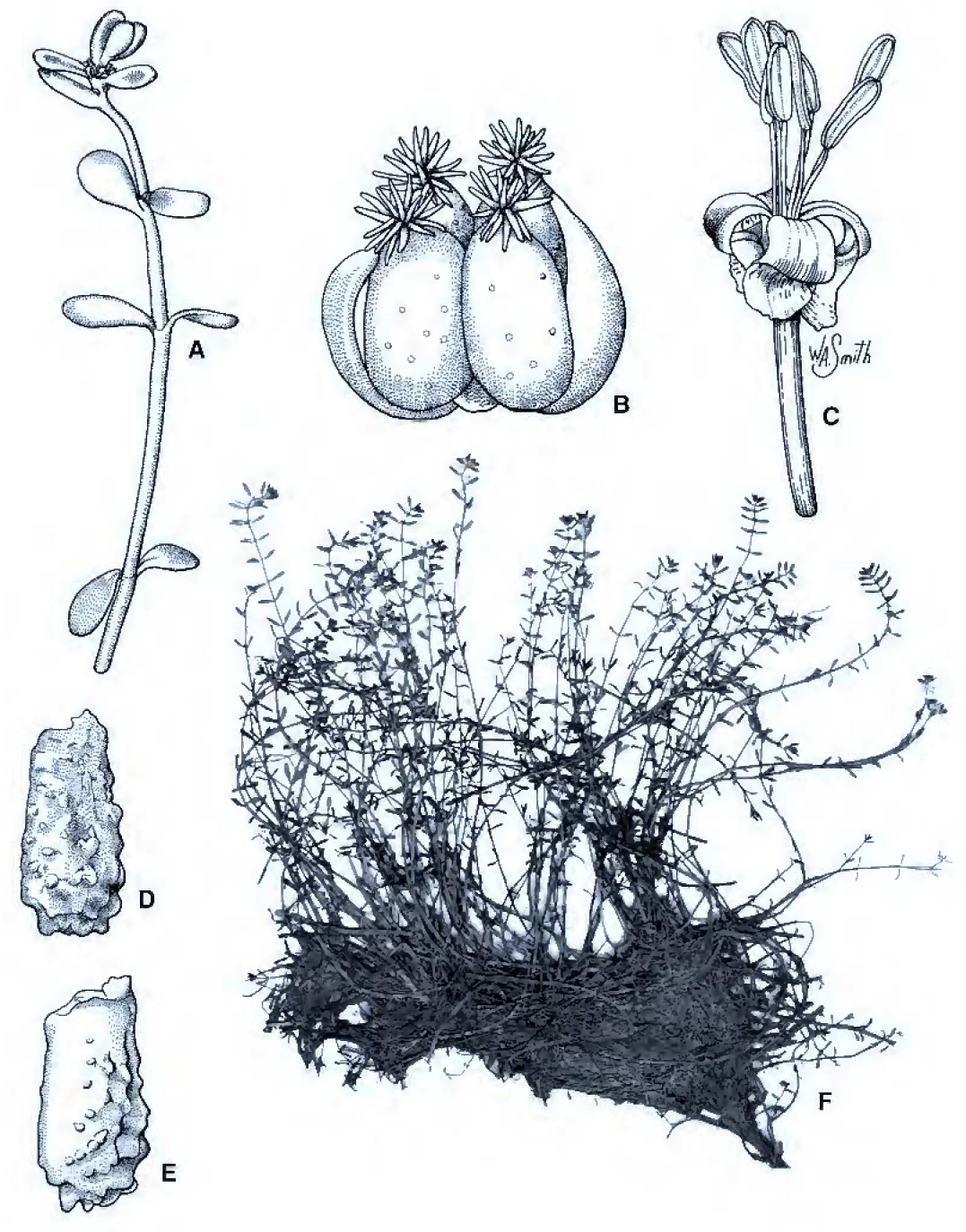
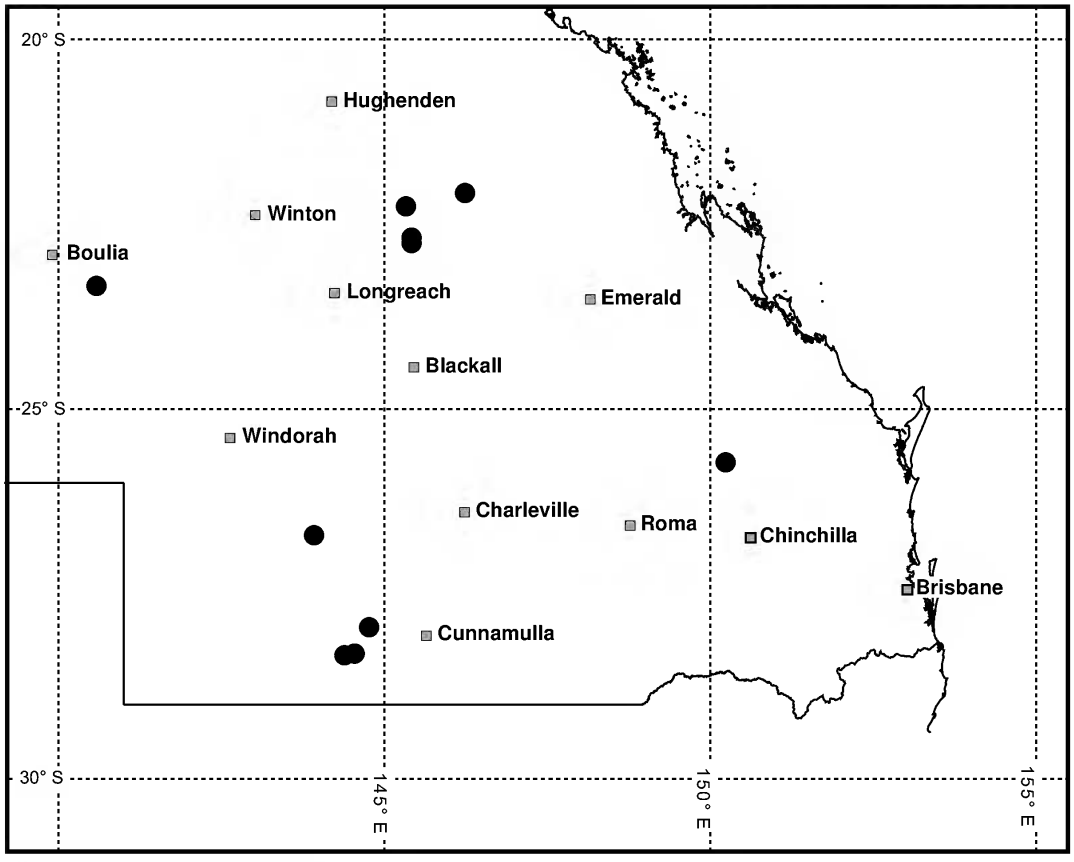


Fig. 1. *Myriophyllum artesium* Halford & Fensham. A. branchlet × 2. B. female flower × 40. C. male flower × 8. D. dorsal view of mericarp × 40. E. lateral view of mericarp × 40. F. whole plant × 0.5. A–C from Fensham 3685 (BRI); D–F from Fensham 3355 (BRI). Del. W. Smith.



Map 1. Distribution of *M. artesium.*

opposite leaves and relatively robust stems. However, *M. artesium* is easily distinguished from them by being dioecious; the absence of sepals in male flowers; the mericarp shape and the sculpturing on the dorsal surface. These and other differences are summarized in Table 1.

M. artesium will key to couplet 44 with *M. lophatum* and *M. austropygmaeum* in Orchard's (1990) key. It can be distinguished from both of these species by the papillate sculpturing on the mericarps and shorter pedicels on male flowers at anthesis (2.0–3.5 mm long for *M. artesium*; greater than 4.0 mm long for *M. lophatum* and *M. austropygmaeum*).

***Notes*:** There are a suite of taxa that are endemic to artesian springs in Queensland including *Eriocaulon carsoni, Eryngium fontanum, Sporobolus pamelae* and other undescribed taxa. *Myriophyllum artesium* is the most widespread of these species and the only one known to also occur outside the wetland habitat of natural springs.

Conservation status: *Myriophyllum artesium* is a Queensland endemic species known from 17 spring complexes and two artesian bore drains. There are a number of threatening processes that have had a dramatic impact on the natural springs of the Great Artesian Basin. These include drastically diminished flows as a result of pressure draw-down because of artesian bores, excavation, eradication of wetlands by pumping, introduction and spread of ponded pasture species such as *Brachiaria mutica,* trampling by domestic stock and rooting by pigs. Many of these threats are ongoing. The recommended conservation status for this species as defined under the Queensland *Nature Conservation Act 1992* is Vulnerable (V).

Etymology: The specific epithet *artesium* is derived from the latinization of the term artesian

and refers to the habitat in which this species grows.

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